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USSR

POKROVSKIY, B. V., YUDIN, YE. YA., Nauchn. tr. NII stroit. fiz. Gosstroya SSSR, 1970, No 1(13), pp 5-25

vibration cover a wide frequency region (800-20,000 Hz) and have a uniformity nature with a clearly expressed maximum. The position of this maximum depends to a considerable degree on the relationship between the natural frequencies of the system and the frequencies of the generated vortices. The roughness, in not changing the character of the dependence of noise and vibration on velocity, effects the value of their levels. An increase in the roughness of the helix causes a rise in the levels of the noise and vibration considerably greater than a similar increase in the roughness of the channels of the pump. From these dependencies of the vibration and noise levels on flow velocity, it was evident that at sufficiently high flow velocities the 6th power law holds not only for a flow with burbling but for a continuous flow over the surfaces. The generation of noise and vibration of centrifugal pumps under inhomogeneous flow has the following characteristic properties: 1. The spectrum of the frequencies emitted is discrete and has components of a harmonic sequence in terms of frequency determined by the product of the number of blades times the number of revolutions per second; 2. the intensity of noise and vibration increases in proportion to the 4-6th power of the circular velocity. In the case of purely hydrodynamic pulsations, the 4th power is observed. If pulsations have an acoustical character i.e., are associated with the compressibility of the liquid the noise and vibration are subject to a 6th power law. In this case the generation of hydrodynamic

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USSR

POKROVSKIY, B. V., YUDIN, YE. YA., Nauchn. tr. NII stroit. fiz. Gosstroya SSSR, 1970, No 1(13), pp 5-25

noise from inhomogeneity of flow and vortex formations has a dipole character ($I \sim U^6D^2$); 3. the magnitude and frequency of the pulsation force acting on the tongue of the helix depends on the gap between the tongue and the wheel, the shape of the tongue, the number and thickness of the blades at the output, the angle of the output, and the operating mode of the pump. Detailed information is given on the effect of structural factors on noise and vibration from flow inhomogeneities. 16 references. V. A. Moor.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--COMPARATIVE STUDY OF ESTROGEN AND ANDROGEN ACTION ON RNA BIOSYNTHESIS IN RAT UTERUS -U-

AUTHOR-(02)-POKROVSKIY, B.V., YUDAYEV, N.A.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(1), 72-8

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANDROGEN, ESTROGEN, TESTOSTERONE, RNA, BIOSYNTHESIS, REPRODUCTIVE SYSTEM, HYPERTROPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0859 STEP NO--UR/0218/70/035/001/0072/0078

CIRC ACCESSION NO--AP0055559

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0055559 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TESTOSTERONE PHENYLPROPIONATE ADMINISTERED S.C. (1 MG 7 TIMES AT 2 INJECTIONS PER DAY) TO OVARIECTOMIZED RATS SIGNIFICANTLY STIMULATED THE INCORPORATION OF ADENINE-8-PRIME14 C INTO THE NUCLEAR RNA OF THE UTERUS IN VIVO. 17BETA-ESTRADIOL ADMINISTERED S.C. (0.05 MUG, 7 TIMES AT 2 INJECTIONS PER DAY) CAUSED IDENTICAL HYPERTROPHY OF THE UTERUS AND TESTOSTERONE DECREASED OR DID NOT CHANGE THE SPECIFIC RADIOACTIVITY OF NUCLEAR RNA. DISTRIBUTION OF RAPIDLY LABELED UTERINE NUCLEAR RNA IN A SUCROSE DENSITY GRADIENT WAS HETEROGENEOUS AND WAS NOT CORRELATED WITH DISTRIBUTION OF RNA AS DETD. BY UV ABSORBANCE. HETEROGENEOUS UTERINE NUCLEAR RNA WAS NOT EXTRACTABLE WITH 2M LICL AND HAD THE MOST READILY EXCHANGEABLE FRACTION IN THE 8-16 S REGION. PART OF THE RAPIDLY METABOLIZING UTERINE RNA SYNTHESIZED DURING ANDROGEN TREATMENT REMAINED IN THE NUCLEUS AND WAS NOT TRANSMITTED TO THE CYTOPLASM.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 081 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--BLAST FURNACES IN SPACE -U-

AUTHOR--POKROVSKIY, G.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TEKHNIKA MOLODEZHI, NO. 2, 1970, PP 54-55

DATE PUBLISHED-------70

SUBJECT AREAS--SPACE TECHNOLOGY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--BLAST FURNACE, METEORITE, ASTEROID, SPACE STATION, SOLAR BATTERY, LASER, SPECTROGRAPH, SLAT, ION, ION ENGINE, HIGH TEMPERATURE PLASMA, MANNED ORBITAL LABORATORY, IRON, COBALT, NICKEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1425 STEP NO--UR/0029/70/000/002/0054/0055

CIRC ACCESSION NO--AP0104739

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 081 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104739

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN A FUTURISTIC LOOK AT SOME OF THE PROBLEMS OF CONSTRUCTING EARTH ORBITING STATIONS AND "WAY" STATIONS FOR FLIGHTS INTO DEEP SPACE, THE AUTHOR SUGGESTS THE USE OF "ORBITAL BLAST FURNACES" TO PROCESS METEORITES AND SMALL ASTEROIDS INTO MATERIALS TO BE USED IN BUILDING SPACE STATIONS. THE DESIGN CALLS FOR THE RAW MATERIAL TO BE HELD BY A MANIPULATOR WHILE A SOLAR BATTERY POWERED LASER VAPORIZES IT. THE HIGH TEMPERATURE PLASMA IS ATTRACTED BY AN ELECTRICAL FIELD AND IS CONCENTRATED INTO A STREAM BY A MAGNETIC LENS. A MAGNETIC SPECTROGRAPH BREAKS THE FLOW DOWN INTO IONS OF VARIOUS SUBSTANCES WHICH ARE CONDENSED INTO IRON, COBALT, AND NICKEL. THESE ARE FORMED INTO SLOWLY ENLARGING BARS. THE SLAG WILL BE DISPOSED OF BY SHOOTING IT OFF INTO SPACE WITH SMALL ION ENGINES, WHICH WILL ALSO BE USED FOR ATTITUDE CONTROL OF THE "FURNACE." FOLLOWING CUTTING AND POLISHING, THE BARS WILL BE SENT ON A PRECISE TRAJECTORY TO THE STATION ASSEMBLY POINT WHERE THEY WILL BE RECEIVED BY AN AUTOMATIC DOCKING ARRANGEMENT, AN ARTIST'S CONCEPTION OF THE UNIT IS GIVEN WITH THE ARTICLES.

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Acc. Nr.: AP0042562

Ref. Code: UR0362

JPRS 50162

Spectra of Wind Velocity at Altitudes 80-100 km

(Abstract: "Characteristics of Wind Velocity Spectra at Altitudes 80-100 km," by G. B. Pokrovskiy and G. M. Teptin, Kazan' State University; Moscow, Izvestiya Akademii Nauk SSSR, Fizika Atmosfery i Okeana, Vol VI, No 2, 1970, pp 127-133)

The spectra of atmospheric movements at altitudes 80-100 km, computed in overlapping intervals with periods from 3 hours to 28 months, reveal a number of peculiarities. On the one hand, there is a similarity to circulation in the lower atmosphere. There is a clearly expressed synoptic maximum which is also observed for ionospheric movements. The degree of expression of this maximum is of the same order of magnitude as in the surface layer. Other periodicities are observed which are similar to variations in the lower atmosphere (annual, quasisemiannual, and others). On the other hand, differences are also noted. In place of a mesometeorological minimum in the spectrum at meteor altitudes there are strongly expressed variations with periods of 12, 24 and 8 hours, caused by the solar tidal effect. In the spectrum of variations in circulation with large periods, in the zonal component of the wind the decisive variation has a

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semiannual period which is characteristic for the most part for the upper atmosphere and which is observed in density variations at altitudes ~200-1,000 km. Variations with an 8-month period are also observed; they are particularly important for the zonal wind component. However, this latter periodicity requires further confirmation on the basis of more abundant statistical data.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR UDC: 621.396.9:527.629.78

POKROVSKIY, G. B.

"On a Procedure for Determining Wind Characteristics in the Meteoric Zone by a Radar Method"

V sb. Meteorn. rasprostr. radiovoln (Meteoric Propagation of Radio Waves -- collection of works), vyp. 7, Kazan', Kazan' University, 1970, pp 98-107 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G97)

Translation: The author discusses three groups of methods for determining wind characteristics in the meteoric zone with the aid of coherent pulse radar: by alternate observation in two mutually perpendicular directions, with a rotating reception antenna which turns through 360° in an hour ("azimuthal" observation) and with the use of angle-measuring devices. The data processing procedure is demonstrated. The results of observations made at Kazan' University show that use of the method of least squares gives the most reliable results. Two tables, bibliography of seven titles. N. S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 034 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SPACE FLIGHT POWER ENGINEERING -U-

AUTHOR--POKROVSKIY, G.I.

COUNTRY OF INFO--USSR

SOURCE--(ENERGETIKA KOSMICHESKOGO POLETA) MOSCOW, ZNANIYE, 1970, 45 PP.

DATE PUBLISHED-------70

SUBJECT AREAS--SPACE TECHNOLOGY

TOPIC TAGS--SATELLITE MOTION, CIRCULAR ORBIT, SPACECRAFT POWER EQUIPMENT, SPACECRAFT MANEUVER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0276 STEP NO--UR/0000/70/000/000/0001/0045

CIRC ACCESSION NO--AM0132530

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 034 UNCLASSIFIED

CIRC ACCESSION NO--AM0132530 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPACE FLIGHT ENERGY 3. POWER OF SATELLITE MOTION ON A CIRCULAR ORBIT 7. POWER OF THE SIMPLEST MANEUVERS IN SPACE 16. MANEUVERING THE SHIP AXIS (SHIP ORIENTATION) 28. EXAMPLES OF STANDARD MANEUVERS IN SPACE 34. MICROMANEUVER IN SPACE. SATELLITES OF SATELLITES 40. CONCLUSION 45.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 038 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DEDUCTION OF THE EQUATIONS OF NONLINEAR RELAXATIONAL HYDRODYNAMICS BY THE METHOD OF NONEQUILIBRIUM STATISTICAL OPERATION II -U-
AUTHOR--POKROVSKIY, L.A.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 1, PP 143-156
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--IRREVERSIBLE PROCESS, MOLECULAR KINETICS, DEGREE OF FREEDOM, CORRELATION FUNCTION, COLLISION INTEGRAL, ACOUSTIC PROPAGATION, HYDRODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1012 STEP NO--UR/0646/70/003/001/0143/0156

CIRC ACCESSION NO--AP0130049
UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 038 UNCLASSIFIED

CIRC ACCESSION NO--AP0130049 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WE STUDY IRREVERSIBLE PROCESSES IN A STATISTICAL SYSTEM OF MOLECULES, WITH INTERNAL DEGREES OF FREEDOM, WEAKLY INTERACTING WITH THE EXTERNAL ONES. THE CONNECTED SYSTEM OF KINETIC AND HYDRODYNAMIC EQUATIONS OBTAINED IN THE WORK (1) BY THE METHOD OF THE NONEQUILIBRIUM STATISTICAL OPERATOR IS STUDIED FOR THE NONLINEAR CASE. THE COLLISION INTEGRAL AND KINETICS COEFFICIENTS ARE DEFINED BY EXPRESSION OF THE SAME TYPE IN TERMS OF CORRELATION FUNCTIONS OF THE QUASI EQUILIBRIUM ENSEMBLE. USING THESE EXPRESSIONS, THE COLLISION INTEGRAL AND THE KINETIC COEFFICIENTS ARE EXPRESSED IN TERMS OF EQUILIBRIUM CORRELATION FUNCTIONS REFERRING ONLY TO THE EXTERNAL DEGREES OF FREEDOM, AND IN TERMS OF THE OCCUPATION NUMBERS OF THE INTERNAL DEGREES OF FREEDOM. THE COLLISION INTEGRAL IS OBTAINED IN A FORM USUAL FOR KINETIC THEORY, BUT WITH TRANSITION PROBABILITIES IN THE FORM OF SPECTRAL DENSITIES OF THE CORRELATION FUNCTIONS. THE RESULTING EQUATIONS ARE APPLIED TO THE PROBLEM OF SOUND PROPAGATION. THE DISPERSION OF THE KINETIC COEFFICIENTS AND OF THE HEAT CAPACITY ARE STUDIED. FOR THE PARTIAL CASE OF A TWO LEVEL MOLECULE WE FIND AN EXPRESSION FOR THE SO CALLED EXCITATION VOLUME OF THE MOLECULE. THE ENTROPY PRODUCTION IS PROVED TO BE POSITIVE FOR THE SYSTEM OF EQUATIONS OBTAINED IN THE CASE OF STRONG INTERNAL NONEQUILIBRIUM. FACILITY: MOSKOVSKIY FIZIKO-TEKHNICKEHSKIY INSTITUT.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

Acc. Nr: AP0046162 P Ref. Code: UR0646

PRIMARY SOURCE: Teoreticheskaya i Matematicheskaya Fizika, 1970, Vol 2, Nr 1, pp 103-116

THE DERIVATION OF THE EQUATIONS OF RELAXATIONAL NONLINEAR HYDRODYNAMICS BY THE METHOD OF NON-EQUILIBRIUM STATISTICAL OPERATOR

Pokrovskiy, L. A.

The method of the non-equilibrium statistical operator is used to study irreversible processes in a statistical system of molecules with internal degrees of freedom weakly interacting with the external degrees of freedom. It is assumed that the internal degrees of freedom are in a strongly non-equilibrium state while the external degrees are close to the state of local equilibrium, described by the local temperature and mass velocity. For the internal degrees of freedom are obtained kinetic equations, which are mutually linked with the system of hydrodynamical equations describing the evolution of the external degrees of freedom. Expressions in terms of correlation function are obtained for the collision integral and kinetic coefficients connecting the kinetic and hydrodynamical equations. Linear approximations are considered and the equations coinciding with those of phenomenological relaxational hydrodynamics are obtained.

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UDC 678.664 - 405.8.01:536.485

DEVYATYAVA, M. A., OKUNEVA, A. G., POKROVSKIY, L. I., and KRYUCHKOV, F. A.

"The Effect of the Nature of Alkylene Oxide on the Properties of Frostresistant Elastic Polyurethane Foam"

Moscow, Plasticheskiye Massy, No 3, 1972, pp 61-62

Abstract: An attempt was made to synthesize frostresistant elastic foam polyurethane based on tetrahydrofuran copolymerized with ethylene and 1,2-butene oxides. Polyurethane foam was obtained at room temperature. Copolymers of tetrahydrofurane with ethylene oxide and 1,2-butene oxide did not differ in their properties except for viscosity: the increased content of ethylene oxide resulted in higher viscosity of the copolymer. The behavior of 1,2-butene oxide copolymer was the opposite. It has been established that regardless of the nature of alkylene oxide, the frostresistance of polyurethane foam is maintained down to about -55 to -60°C. The type of alkylene oxide used has an effect on the content of primary hydroxyl groups in the copolymers, which are responsible for their reactivity towards isocyanates. A higher content of primary hydroxyl group in the tetrahydrofurane + ethylene oxide copolymer makes it possible to use a less active toluylene diisocyanate T-65 for the synthesis of polyurethane foam.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

GOLUBEV, N. A., ZHUKOVSKIY, Ye. L., POKROVSKIY, N. L.

"Study of Surface Tension of Solutions in the System Indium-Bismuth"

Issledovaniye Poverkhnostnogo Natyazheniya Rastvorov Sistemy Kidiy-Vismut [English Version Above], Moscow, 1971, 9 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1357 Dep. by the author's).

Translation: The method of maximum pressure in a drop is used to measure the surface tension σ of solutions in the system In-Bi in the range of concentrations from 0 to 100% of both components and in the temperature interval 200-500°. It was discovered that the isotherms do not experience any anomalies in the area of concentrations corresponding to the intermetallic compounds In_2Bi, InBi and the eutectic. The equation of Shishkovskiy is used for analytic description of the isotherm. This equation was solved on the M-20 computer. It was found that it describes the course of the isotherm σ for the entire area of concentrations of In-Bi solutions well. The polytherms of σ for these solutions are linear and have a negative temperature coefficient.

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AA0040746 P UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-76

240323 SAMPLER for easily fusible metals is a vacuum hood with a tube on top containing a capillary and an external heating element. A drop of liquid metal can be pressed through the capillary by raising the armature of a solenoid and letting it drop. A drop of metal falls on a mirror plate which is separated by a partition from another heating element. To obtain another sample the hood can be turned relative to the mirror plate.

2.9.65 as 1026869/26-25. N.L.POKROVSKII & O.A. MIKHNO (20.8.69.) Bul 12/21.1.69. Class 42f. Int.Cl.G 01n.

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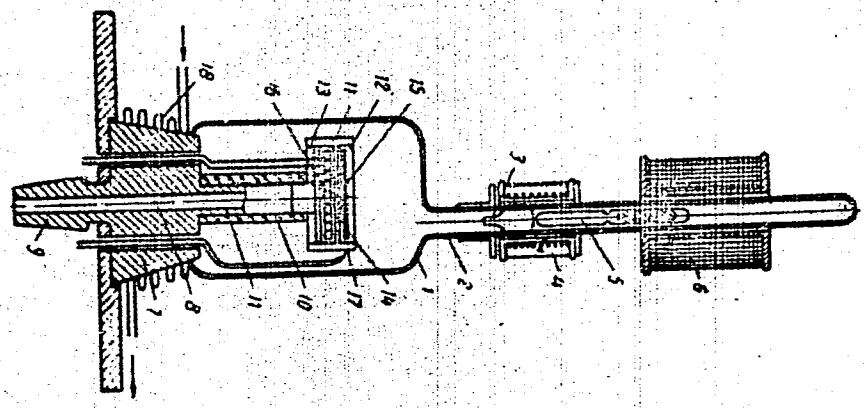

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/3 035 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EXPERIMENT IN THERMAL SOUNDING OF THE ATMOSPHERE FROM SATELLITES
-U-
AUTHOR-(05)-KONDRATYEV, K.YA., NORDBERG, V., POKROVSKIY, O.M., TIMOFEYEV, YU.M., KHANEL, R.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL 191, NO 6, 1970, PP 1274-1276
DATE PUBLISHED--------70

SUBJECT AREAS--SPACE TECHNOLOGY, ATMOSPHERIC SCIENCES

TOPIC TAGS--TEMPERATURE, MEASUREMENT, INTEGRAL EQUATION, EARTH RADIATION, THERMAL RADIATION, SATELLITE DATA ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0050 STEP NO--UR/0020/70/191/006/1274/1276

CIRC ACCESSION NO--AT0129332
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/3 035 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0129332

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF THERMAL SOUNDING OF THE ATMOSPHERE ESSENTIALLY INVOLVES SOLUTION OF A FREDHOLM INTEGRAL EQUATION OF THE FIRST KIND: I(V) INTEGRAL FUNCTION OF K(GAMMA, P) PHI (P) DP. TWO METHODS ARE USED IN THIS STUDY FOR SOLVING INTEGRAL EQUATION (1): THE REGULARIZATION METHOD (A. N. TIKHONOV, DAN, 153, NO 1, 34, 1963) WITH CHOICE OF A QUASI OPTIMUM APPROXIMATION BY A METHOD PROPOSED BY ONE OF THE AUTHORS AND THE M. T. CHAHINE METHOD (J. OPT. SOC. AM., 58, NO 12, 1934, 1968), BASED ON MINIMIZING THE MEAN SQUARE DIFFERENCE BETWEEN THE MEASURED AND THEORETICALLY COMPUTED RADIATION VALUES. IN BOTH METHODS THE INITIAL INFORMATION, THE MAGNITUDE OF OUTGOING RADIATION, AND KERNEL OF THE EQUATION COINCIDED. COMPARISON OF THE TWO METHODS REVEALS A GOOD GENERAL AGREEMENT BETWEEN DIRECT AND INDIRECT TEMPERATURE DETERMINATIONS. HOWEVER, ERRORS IN DETERMINING TEMPERATURE FROM SATELLITE DATA IN SOME CASES ARE CONSIDERABLE, ATTAINING APPROXIMATELY 10DEGREES NEAR THE 100 MB LEVEL IN INTERPRETATIONS BY THE CHAHINE METHOD AND 8DEGREES BY THE REGULARIZATION METHOD. THE STANDARD DEVIATIONS FOR BOTH INTERPRETATION METHODS ARE APPROXIMATELY IDENTICAL AND CLOSE TO 3DEGREES. RELATIVELY LARGE ERRORS IN INDRIECT DETERMINATION OF TEMPERATURE CAN BE ATTRIBUTED TO A NUMBER OF FACTORS: ERRORS IN MEASURING RADIATION, ERRORS IN STIPULATING THE KERNEL OF EQUATION (1), ERRORS IN NUMERICAL SOLUTION OF THE INTEGRAL EQUATION (APPROXIMATION ERRORS, ERRORS IN ROUNDING OFF). THE PRINCIPAL SOURCES OF ERRORS ARE THE FIRST TWO. ERRORS IN STIPULATING THE KERNAL OF EQUATION (1) ARE PARTICULARLY IMPORTANT.

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CIRC ACCESSION NO--AT0129332

ABSTRACT/EXTRACT--DESPITE A HIGH MEASUREMENT ACCURACY THESE ERRORS CONSIDERABLY LOWER THE ACCURACY IN RECONSTRUCTING THE TEMPERATURE PROFILE. THE SINGLE EXAMPLE CITED IN THIS ARTICLE OF A COMPARISON BETWEEN THE TWO INTERPRETATION METHODS DOES NOT MAKE IT POSSIBLE TO DRAW SERIOUS CONCLUSIONS CONCERNING THE ADVANTAGES OF THE DIFFERENT APPROACHES TO SOLUTION OF THE PROBLEM. HOWEVER, THE REGULARIZATION METHOD MADE POSSIBLE A MORE PRECISE RECONSTRUCTION OF THE TEMPERATURE PROFILE IN THE REGION ABOVE 100 MB AND WAS SOMEWHAT POORER THAN THE CHAHINE METHOD IN THE PRESSURE RANGE FROM 100 TO 500 MB.

FACILITY: LENINGRAD STATE UNIVERSITY.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

UDC:669.046.558.7:669.015.3

KALINNIKOV, Ye. S., EFROS, D. I., BORODETS, I. V., YABUROV, S. I., IZMANOVA, T. A., and POKROVSKIY, V. A.

"Some Properties of the Ingots of Chrome-Nickel-Molybdenum Steel Treated With Liquid Synthetic Slag and in Vacuum"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 226-234

Translation: Three melts of structural chrome-nickel-molybdenum steel were made in a basic 50-T open hearth furnace. In the ladle, the metal of each melt was treated using one of three versions of technology:

I--refining with liquid synthetic slags;

II--evacuation in the ladle;

III--refining with liquid synthetic slag with subsequent evacuation in the ladle.

The structural and chemical heterogeneity of a 2.85-T ingot and the mechanical properties of the cast metal were studied.

The steel produced by versions I and II were distinquished by low sulfur content, 0.007 and 0.006% respectively, while type II steel had minimum hydrogen content. The structural zones of all ingots were developed practically identically. Ingots of versions I and III showed stability of

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KALINNIKOV, Ye. S., et al., Proizvodstvo Chernykh Metallov, No 75, Metallurgiya Press, 1970, pp 226-234

chemical composition both in height and in cross section. The steel treated with the synthetic slag differs from the vacuum steel in its higher mechanical properties. Vacuum treatment of the steel after treatment with synthetic slag did not cause a further increase in properties. It is established that the influence of sulfur on the development of non-axial heterogeneity and changes in the mechanical properties of cast steel is more significant than the influence of hydrogen. 7 figures; 6 tables; 6 biblio. refs.

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UDC 616.988.75-06:616.931.232-097.5

POKROVSKIY, V. I., SACHKOV, V. I., MATVEYEVA, S. M., VENGEROV, Yu. Ya., GROMOGLASOVA, Ye, V., and MARKOVA, N. V., Moscow Medical Stomatological Institute

"Group-Specific Antimeningococcus Antibodies in Various Forms of Meningococcus Infection in the Presence of Influenza Viruses"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972, pp 115-120

Abstract: Circulating antimeningococcus group-specific antibodies the formation of which was triggered by meningococcus infection were studied. The precipitation method which included the diffusion of antigens, antibodies, and their complexes through a membrane was used. The blood sera of individuals without any contact with meningococcus infection contained in average 370 μg antigen-antibody complex/ml, and it increased to 590 μg/ml for the medical personnel who had contact with patients carrying meningococcus infection. The number of antibodies in patients with pure meningitis was 920, 830, and 820 μg/ml of blood serum during the first day in hospital, in 5-6 days, and at the end of hospitalization, respectively. Patients in whom meningitis was combined with meningococcemia carried 730, 623, and 502 μg antibodies/ml of blood serum tested during the same periods. When the meningococcemia was prevalent, the

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USSR

POKROVSKIY, V. I., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972, pp 115-120

number of antibodies was 630, 553, and 510 μg/ml during respective periods. The serologically detected influenza virus Hong Kong A2 produced the sub-clinical form of the meningococcus infection and increase the number of the infection carriers. Increase in the antibody titer toward influenza A2 viruses in patients with the meningococcus infection was, probably, the additional sensitizing factor which led to hyperergia and meningococcemia. This was accompanied by a decrease in the number of the antimeningococcus antibodies and by titer increases of the antiviral antibodies. The immunological process in the case of meningococcus infection combined with respiratory viral infection produced conditions favorable for anaphylactic reactions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC 612.013.1.014.43.014.461

POKROVSKIY, V. I., BULYCHEV, V. V., LISYKOV, T. Ye., MALEYEV, V. V., UTEKHIN, V. A., CHERNAYEVA, T. Ye., MAYOROV, Yu. M., MILOVIDOVA, S. S., and KAFAROV, K. A., Central Department of Infectious Pathology, Scientific Research imeni N. N. Pirogova, Institute of Epidemiology, Ministry of Health USSR, and chair of Hospital Therapy, Evening Faculty, Second Moscow Medical Institute, and Chair of Hygiene, State Central Institute for Physical Culture

"Effect of Dehydration and Hyperthermia on Homeostasis in Healthy Persons"

Moscow, Sovetskaya Meditsina, No 2, 1973, pp 27-31

Abstract: Blood che istry and cardiovascular changes were studied in 20 healthy males aged 18 to 32 before and after staying various lengths of time in a sauna bath (15 to 30 and 35 to 55 minutes of exposure to temperatures of 80 to 100° and humidity of 8%). In those who remained in the sauna 15 to 30 minutes, hyperthermia resulted in hyperfunction of the heart, slowing of the blood flow, elevation of the pH and pressure of venous blood, increase in serum proteins and in the specific gravity and viscosity of blood, decrease in clotting time, loss of chlorine and potassium. In the group that remained in the sauna over 35 minutes, dehydration caused a loss of electrolytes (chiefly chlorine and potassium) with urine, cardiac hypofunction, slowing of the blood

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USSR

POKROVSKIY, V. I., et al., Sovetskaya Meditsina, No 2, 1973, pp 27-31

flow, decrease in venous and arterial blood pressure, shortening of clotting time, and increase in blood proteins, specific gravity, viscosity, and pH. The biochemical changes in both groups were within physiological limits and had no lasting effects. These findings can be used to determine disruptions of homeostasis, evaluate alterations in water-salt metabolism, acid-base equilibrium, etc. in infectious patients, and assess the efficacy of therapy, particularly in gastrointestinal diseases.

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POKROVSKIY, V.I.

MEDICINE

INTRAVITAL MORPHOLOGY OF THE GASTROINTESTINAL MUCOSA OF CHOLERA PATIENTS (ACCORDING TO ASPIRATION BIOPSY FINDINGS)

[Article by V.I. Pokrovskiy, N.N. Shalygina, V.Ya. Bashkatskiy, V.P. Kachilov, L.B. Lazutkina, Central Scientific Research Institute of Epidemiology, Moscow; Moskovskiy Akademii Meditsinskikh Nauk SSSR, Russian, No 5, 1972, pp 77-84]

UDC: 616.932-07:616.33-018.73-092-076

The nature and severity of lesion to the digestive tract in the presence of cholera are of primary significance with respect to understanding the pathogenesis of the disease and, to some extent, they determine not only methods of treatment but also recommendations after recovery. In the last ten years there has been a significant change in concepts about the essence of intestinal lesion associated with cholera, based on pathological anatomy (A. Polunin, 1848; N.I. Pirogov, 1850; N. Ivanovskiy, 1873; I.G. Savchenko, 1893; A.D. Volokhin, 1909; G.S. Kulesha, 1909; N.Ya. Chiterovich, 1918, 1929, and others).

Among those who died of cholera in the algid period extreme dehydration of the organism was present, in addition, the patients lose significant quantities of sodium, potassium, chloride, calcium, and bicarbonates in excretions (Herman, 1832; Witstock, 1832; Parkes, 1947; Bucquerel, 1849; Schmidt, 1850; Rogers, 1921; Aron, 1910, and others). According to our observations, some patients lost up to 130 grams of sodium and 35 grams of potassium during a bout of diarrhea.

Thus, the pathoanatomical changes typical in deaths due to cholera are determined not only and not so much by the effect on the organism of the infection as by disturbances in water-base metabolism which develop extremely intensively.

Many investigators (S.S. Botkin, 1892; Banerjee, 1935; Kempel-Frontus, 1941; Nadal et al., 1941; Marriott, 1947, and others) tried to differentiate between lesions caused by infectious intoxication and the results of exsiccosis. However, it is only since 1948, when massive rehydration therapy was proposed (Johnson et al., 1958) and brilliantly justified itself, lowering mortality, when cholera victims were treated promptly, to practically zero, did it become really possible to differentiate between lesions due to intoxication and those associated with exsiccosis.

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USSR UDC 911.3:616.34(575.1)

SHATROV, I. I., POKROVSKAYA, M. P., KRASKINA, N. A., BRAYNINA, R. A., ELKIN, I. I., SKVORTSOV, V. V., KILESSO, V. A., BUNIN, K. V., NIKIFOROV, V. N., POKROVSKIY, V. I., and STARSHINOVA, V. S.

"Current Status of Typhoid"

V sb. Materialy XV Vses. syezda epidemiologiv, mikrobiologov i infektsionistov, Tezisy Dokl. Ch. 1 (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists, and Infectious Disease Specialists, Theses Reports, Part 1 -- collection of works), Moscow, 1970, pp 262-269 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.258)

Translation: During the last seven years, the incidence of typhoid has decreased each year by 6-7% on the average in this country. Maximum drops were observed in the Belorussian SSR, Kazakh SSR, Lithuanian SSR, Latvian SSR, Armenian SSR, and Estonian SSR; minimum drops were found in the Uzbek SSR and Kirghiz SSR. During the last two years, the incidence of typhoid was 10% higher among rural residents than among urban residents. In comparison with 1964, a drop in incidence of approximately 40% was observed; in rural locations, the drop was 23%. The leading significance of the water factor in transfer and distribution of the agent of typhoid is

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USSR

SHATROV, I. I., et al., Materialy XV Vses. syezda epidemiologiv, mikrobiologov i infektsionistov, Tezisy Dokl, Ch. 1 (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists, and Infectious Disease Specialists, Theses Reports, Part 1 -- collection of works), Moscow, 1970, pp 262-269 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.258)

confirmed. Of decisive importance, particularly in recent years, is the nutritional (milk) factor of typhoid transfer and distribution.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

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UDC 616.932-08-036.8:612.013.1

NIKIFOROV, V. N., POKROVSKIY, V. I., BULYCHEV, V. V., MALEYEV, V. V., KUPRIYCHUK, A. B., KUCHEROVA, T. P., BALASHEV, V. I., KOL'YAKOVA, T. A., and VEVYUR, N. A., Scientific Research Institute of Epidemiology, Ministry of Health USSR

"Restoration of Homeostasis in Cholera Patients Receiving Rehydration Therapy"

Moscow, Sovetskaya Meditsina, No 9, 1971, pp 114-120

Abstract: Normalization of disturbances of homeostasis in cholera patients is achieved by careful monitoring of the effects of rehydration therapy. Various indices of homeostasis -- physicochemical properties of the blood, acid-base equilibrium of arterial and venous blood, clotting, etc. -- were investigated in 58 patients with Asiatic cholera before and during rehydration with the standard No 1 solution (5 g NaCl, 4 g $NaHCO_3$, and 1 g KCl per liter of apyrogenic water). The disturbance of homeostasis before treatment was marked by increased specific gravity of plasma, viscosity, and hematocrit and decreased volume of circulating plasma. Changes in the acid-base equilibrium and blood gases were manifested by signs of compensated respiratory alkalosis, metabolic compensated acidosis, and stagnant hypoxemia. Disruption of the movement of blood electrolytes was accompanied by decreased concentration of potassium,

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NIKIFOROV, V. N., et al., Sovetskaya Meditsina, No 9, 1971, pp 114-120

sodium, and chlorine. Fibrinolysis, clotting, recalcification, and heparin time increased while the prothrombin index and fibrinogen increased.

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UDC 616.9(075.8)

BULKINA, I. G., and POKROVSKIY, V. I.

Infektsionnyye Bolezni S Ukhodom Za Bol'nymi i Osnovami Epidemiologii (Infectious Diseases With Care of Patients and Foundations of Epidemiology), Leningrad, "Meditsina," 1970, 317 pp

Translation:

Table of Contents

	Page
Foreword	3
GENERAL SECTION	
Brief Historical Outline	5
General Epidemiology	9
Epidemic Process	10
Epidemic Focus. Investigation of Natural Foci	16
Measures of Control of Infectious Diseases	20
Measures of Control of Sources of Infection	21
Measures Disrupting Routes of Transmission of Infection	24
Disinfection	25
Insect Extermination	38
Rodent Extermination	41
Measures for a Susceptible Collective	42

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

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BULKINA, I. G., and POKROVSKIY, V. I., Infectious Diseases With Care of Patients and Foundations of Epidemiology, Leningrad, "Meditsina," 1970, 317 pp

Immunity and Ways of Increasing Vaccines 43
Toxiods 48
Foundations of the Organization of a Sanitary Antiepidemic Service in the USSR 49
General Pathology of Infectious Diseases 52
Characteristics of Infectious Diseases 52
Basic Methods of Diagnosing Infectious Diseases 57
Classification of Infectious Diseases 72
Structure and Regimen of Hospital Infectious Disease Departments 75
Treatment of Infectious Patients 81
Antimicrobial and Antiparasitic Drugs 82
Antibiotics 82
Sulfanilamide Preparations 85
Antiparasitic Preparations 86
Bacteriophages 86
Sera and Gamma-globulins 87
Vaccines 94
Non-Specific Treatment of Infectious Patients 95

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Patient Nutrition	110
Care of Infectious Patients	113
SPECIAL SECTION	
I. Intestinal Infections	122
Typhoid Fever	122
Paratyphoid A and Paratyphoid B	135
Food Poisoning	135
Botulism	139
Bacterial Dysentery	143
Amebiasis	153
Asian Cholera	156
Infectious Hepatitis (Botkin;s Disease)	167
Poliomyelitis, Endemic Poliomyelitis (Heine-Medin Disease)	171
Coxsackie and Echo Infections	178
II. Blood (Communicable) Diseases	181
Rickettsioses	181
Epidemic Louse-Borne Scrub Typhus (Typhus Exanthematicus)	191

3/6

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Brill's Disease	190
Tickborne Rickettsiosis, North Asian, Tickborne Scrub Typhus or North Asian Ixodorickettsiosis	191
Epidemic or Murine Rickettsiosis	194
Q-fever Q-Rickettsiosis	195
European Epidemic Louse-Borne Relapsing Typhus	198
Tickborne Relapsing Typhus (Spirochaetosis acarina)	202
Malaria	204
Leishmaniases	220
Visceral Leishmanasis	220
Cutaneous Leishmaniasis	223
Pappatacci Fever (Mosquito fever)	226
Epidemic Encephalitides	227
Tickborne Spring-Summer (Taiga) Encephalitis	227
Summer-Autmn Mosquito (Japanese) Encephalitis	231
Hemorrhagic fevers	232
Zoonoses	236
Brucellosis	236

4/6

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

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BULKINA, I. G., and POKROVSKIY, V. I., Infectious Diseases With care of Patients and Foundations of Epidemiology., Leningrad, "Meditsina," 1970, 317 pp

Rabies (Hydrophobia, Lyssa) 244
Leptospiroses 248
Swamp fever Nonicteric leptospirosis 248
Weil's-Vasil'yev's Disease (Icterohemorrhagee leptosphorsis) 250
Glanders (Malleus) 252
Anthrax 154
Tularemia 260
Plague 268
Foot and Mouth Disease 268
III. Infections of the Respiratory Organs 269
Influenza 271
Parainfluenza Viral Diseases 274
Adenoviral Infections 274
Infectious Monomucleosis, Filatov's Disease 276
Smallpox 277
Ornitosis 283
Epidemic Cerebrospinal Meningitis 285

5/6

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BULKINA, I. G., and POKROVSKIY, V. I., Infectious Diseases With Care of Patients and Foundations of Epidemiology, Leningrad, "Meditsina," 1970, 317 pp

IV. Infections of the Integuments
Erysipelas
Tetanus 292
Appendixes 294
Appendix 1. Special information concerning infectious diseases, nutrition, and acute occupational intoxication 302
Appendix 2. Isolation periods of patients afflicted with infectious diseases 302
Appendix 3. Map of an epidemiologically investigated focus of aerial-droplet infection 303
Appendix 3a. Map of an epidemiologically investigated focus of intestinal infectious diseases 305
Appendix 4. Incubation periods of different infectious diseases 308
312

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

Acc. Nr: AP0044201 Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 2, pp 95-100

EPIDEMIOLOGICAL ANALYSIS OF OUTBREAKS OF MENINGOCOCCUS INFECTION

REPORT I

Favorova, L. A.; Mironova, T. K.; Margolina, M. S.; Pokrovskiy, V. I.; Vengerov, Yu. Ya.; Kostyukova, N. N.; Ignatov, Yu. I.

The authors present materials concerning epidemiological and microbiological characteristics of outbreaks of meningococcus infection which occurred in 1967—1968 against the background of prolonged epidemiological welfare. The outbreaks, characterized by individual cases of the disease, widespread nasopharyngitis and carrier state, had a number of characteristic epidemiological signs (automnospring seasonal prevalence, the patients' age range — from 12 to 20 years, and marked «nidality» of meningitis cases).

Strains of meningococci isolated from carriers differed in serological respect: along with types A, B and C there occurred many nonagglutinating strains, and also polyagglutinable and spontaneously agglutinating cultures.

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UDC: 616.981.232-036.22-616.831.9-022-022.7-036.22

FAVOROVA, L.A., MIRONOVA, T.K., MARGOLINA, M.S., POKROVSKIY, V.I., VENGEROV, YU.YA., KOSTYUKOVA, N.N., AND IGNATOV, YU.I., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, and Central Institute of Epidemiology

"Epidemiological Analysis of Outbreaks of Epidemic Cerebrospinal Meningitis Report!"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, 1970, pp 95-100

Abstract: The incidence of cerebrospinal meningitis in the Soviet Union dropped over 25 years ago to a very low level and stabilized. Only isolated cases were reported until 1967-1968, when minor epidemics of the disease occurred in a number of inhabited places. These outbreaks had a number of features in common: frequency of mostly asymptomatic nasopharyngitis not detected by physicians, prevalence of the carrier state, infection mostly among children 12-20, especially those living under extremely crowded conditions in boarding schools, and occurrence in the fall and spring. The various control measures adopted halted the spread of the disease but not the carrier state, which persisted until the children returned to their homes for holiday vacations.

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1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SPIN WAVES AT DISLOCATIONS IN SILICON, ETC -U-

AUTHOR--POKROVSKY, V.L.

COUNTRY OF INFO--USSR

SOURCE--ZHUR. EKSPER. I TEORET. FIZIKI, PIS'MA, 20 FEB. 1970, 11, (4), 233-235

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR MATERIAL, SILICON, MAGNETIC FIELD EFFECT, CRYSTAL LATTICE STRUCTURE, PARAMAGNETIC RESONANCE, SPIN WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0248 STEP NO--UR/0386/70/011/004/0233/0235

CIRC ACCESSION NO--AP0124010

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124010

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NATURE OF THE DISLOCATIONS OCCURRING IN SI AND OTHER SEMICONDUCTING CRYSTALS IS DISCUSSED FROM THE POINT OF VIEW OF THEIR MAGNETIC EFFECTS (SPIN WAVES). THE DISLOCATIONS CONSTITUTE NOT SIMPLY THE ENDS OF LATTICE PLANES BUT ALSO SETS OF UNCOMPENSATED SPINS; THESE GIVE RISE TO ASSOCIATED SPIN WAVES WHICH SHOULD BE REFLECTED IN SUCH EXTERNAL PHENOMENA AS PARAMAGENTIC RESONANCE SPECTRA. INITIAL EXPERIMENTS SUGGEST THAT SUCH EFFECTS DO IN FACT OCCUR, ALTHOUGH AS YET THEY ARE INSUFFICIENTLY PRECISE TO COMPARE WITH THEORY.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--POSSIBLE ORBITAL MAGNETISM -U-

AUTHOR-(02)-POKROVSKIY, V.L., UIMIN, G.V.

COUNTRY OF INFO--USSR

SOURCE--PIS'MAZH. EKSP. TEOR. FIZ. 1970, 11(3), 206-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HAMILTONIAN, ORBIT MOMENTUM, MAGNETIC MOMENT, ANTIFERROMAGNETISM, PARAMAGNETISM, MAGNETIC TRANSFORMATION, SPIN SYSTEM, CONDUCTION BAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0148 STEP NO--UR/0386/70/011/003/0206/0209

CIRC ACCESSION NO--AP0103827

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0103827

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUATION FOR THE EFFECTIVE HAMILTONIAN, H SUBEFF, WAS DEVELOPED ON THE BASIS OF THE HAMILTONIAN SUGGESTED BY HUBBARD (1963). IN THE SYSTEM DESCRIBED BY H SUBEFF, THE COMPLETE ORBITAL MOMENT, SPIN, AND PROJECTION ARE CONSERVED. SINCE SPIN ORDERING IS DESTROYED AT LOWER TEMP. THAN ORBITAL ORDERING, THE DESCRIBED SYSTEM PASSES 1ST INTO THE ANTIFERROMAGNETIC STATE AND THEN INTO THE PARAMAGNETIC. EXPTL. CONFIRMATION OF ORBITAL MAGNETISM SHOULD BE FOUND IN METALS WITH A NARROW CONDUCTION BAND OR IN A FERRODIELEC. COMPD. WITH A HIGH TRANSITION TEMP. FACILITY: INST. TEOR. FIZ. IM. LANDAU, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

Acc. Nr: AP0043686 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoretichaskoy Fiziki, 1970, Vol 58, Nr 2, pp 677-682

DISLOCATION MOBILITY IN A LATTICE WITH LARGE PEIERLS BARRIERS

Pokrovskiy, V. L.; Kazantev, A. P.

The mobility of dislocations under the action of an applied stress is considered. Activation motion is the major mechanism of motion. Cases of small and large tensions and also of long and short dislocations are investigated in detail. The calculations are compared with the experimentally observed power law dependence of the dislocation velocity on tension.

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USSR

UDC 575.24:576.85

POKROVSKIY, V. N., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow

"Study of the Properties of Hcr and Lon-Mutants of Salmonella typhimurium LT2"

Moscow, Genetika, Vol VIII, No 4, 1972, pp 110-116

Abstract: A study was made of the genetics of the radiation resistance of Hcr and Lon-mutants of Salmonella typhimurium LT2. The presence of two mutations of the Lon-mutant was established. One of them is responsible for the sensitivity to ultraviolet light and the other, to high temperatures. During postradiation incubation in a buffer, only the Lon-mutants exhibited an increased survival rate, leaving the mutants with a disturbed dark repair system unchanged. Among the mutants having a disturbed dark repair system, a more pronounced death rate was observed in lysogenic strains in the logarithmic growth phase. In the stationary growth phase, no significant differences in the survival rate of the lysogenic and nonlysogenic bacteria was observed. No differences in the survival rate of lysogenic and nonlysogenic bacteria as a function of the growth phase was detected among the Lon-mutants. Spontaneous induction of the P-22 stage was increased among the investigated mutants, especially the Lon-strains. No ultraviolet induction of the P22

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USSR

POKROVSKIY, V. N., Genetika, Vol VIII, No 4, 1972, pp 110-116

stage was observed among the Lon-mutants. The seeding efficiency of the P22 stage was reduced in the Lon-strains, amounting to 0.2-0.35.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THEORY OF THE VISCOELASTIC BEHAVIOR OF REGULAR POLYMER NETWORKS WITH STABLE CROSSLINKS CONNECTING FOUR CHAINS -U-
AUTHOR-(02)-POKROVSKIY, V.N., CHUBISOV, M.A.

COUNTRY OF INFO--USSR

SOURCE--NEKH. POLIM. 1970, 6(2), 209-16

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS, MATERIALS

TOPIC TAGS--VISCOELASTICITY, POLYMER CROSSLINKING, POLYMER PHYSICAL PROPERTY, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605011/F09 STEP NO--UR/0374/70/006/002/0209/0216

CIRC ACCESSION NO--AP0140237

UNCLASSIFIED

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2/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140237

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EACH NODE OF THE REGULAR NETWORK FORMED BY FLEXIBLE MACROMOLS., IS EXPOSED TO AN ELASTIC FORCE FROM ADJACENT NODES, VISCOSITY FORCES (PROPORTIONAL TO THE RELATIVE VELOCITY OF THE NODE), AND THE EFFECTIVE BROWNIAN MOTION FORCE. A KINETIC EQUATION, DESCRIBING THE PROPERTIES OF DEFORMED NODES, WAS DERIVED. THE RELAXATION TIME WAS DETD. AND THE BEHAVIOR OF POLYMER NETWORK DURING SINUSOIDAL SHEAR DEFORMATION WAS DISCUSSED. THE COMPLEX MODULUS OF ELASTICITY WAS EVALUATED AS A FUNCTION OF NETWORK PARAMETERS AND FREQUENCY. FACILITY: FILIAL INST. KHIM. FIZ., CHERNOGOLOVKA, USSR.

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USSR

MILOVANOV, V. P., POKROVSKIY, V. N., CHERENKOV, P. A., and YUTLANDOV, I. A., Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR

"Angular Dependence of Multicharged Particles Formed From Al^{27} Nuclei by 660-Mev Protons"

Moscow, Yadernaya Fizika, Vol. 12, No. 2, Aug 70, pp 234-238

Abstract: The angular distributions of multicharged particles C^{11}, N^{13}, and F^{18} formed by bombarding Al^{27} nuclei with 660-Mev nuclei were measured. The measurements were conducted on the synchrocyclotron of the Nuclear Physics Laboratory of the Joint Institute of Nuclear Research. The fragment yield was measured at three angles relative to the direction of the proton beam. The target was aluminum foil 0.27 and 2.43 mg/cm^2 in thickness. The thickness of the first foil was considerably less than the mean free path of the fragments, which is approximately 4 mg/cm^2, while the thickness of the second foil was in order of magnitude equal to the mean free path of the fragments, so this target could not be considered as thin. Results showed that the thin and thick targets used gave practically the same angular distributions. The angular distributions

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MILOVANOV, V. P., et al, Yadernaya fizika, Vol. 12, No. 2, Aug 70, pp 234-238

of the multicharged particles decreased smoothly in absolute value with an increase in the angle of observation. The average number of particles l formed as the result of the reaction and the type of particles accompanying the escape of a fragment is unknown. Curves are given showing the angular dependence associated with the phase space for certain values of l. A tendency was observed toward an increase in the average number of particles l with a decrease in the mass of the fragment from 18 to 8 in the disintegration of Al^{27} nuclei by 660-Mev protons. It turns out on the average that in the formation of one of these multicharged particles in the final state there appears a total of about 7 particles. This number of particles is approximately one third less than the average number of particles formed in the disintegration of Ag and Br nuclei by 660-Mev protons together with a fragment with $Z \geq 4$. The angular distributions of multicharged particles formed from Al^{27} nuclei by 660-Mev protons is thus in good agreement with a dependence caused only by the phase space. Further experiments plan to show to what extent the estimated values of l correspond to the real values.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC: 620.178.37

TROSHCHENKO, V. T., POKROVSKIY, V. V., Kiev

"Study of Regularities of Fatigue and Brittle Rupture of 15G2AFDps Steel at Low Temperatures"

Kiev, Problemy Prochnosti, No 3, Mar 63, pp 11-17.

Abstract: Type 15G2AFDps steel, a ferritic-perlitic type, is studied. The influence of temperature and stress form on endurance of the steel, kinetics of development of fatigue cracks and brittle rupture resistance are determined. It is demonstrated that the endurance limit of the steel, both with harmonic and with combined loads, increases with decreasing temperature with transition temperature from fatigue to brittle rupture for this steel lying between -95 and -120°C. Fatigue tests using known dependences are utilized to determine the critical stress intensity factors and to show the nature of their change with decreasing temperature. It is demonstrated that the additional application of an impact load of the intensity used has no influence on the conditions of transition to brittle rupture. 1 table, 8 figures, 10 biblio. refs.

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1/2 050 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PARAMETRIC RESONANCE IN AN ANNULAR LASER -U-

AUTHOR-(04)-KRUGLIK, G.S., PESTOV, E.G., POKROVSKIY, V.P., KUTSAK, A.A.

COUNTRY OF INFO--USSR

SOURCE--VSESOIUZNYI SIMPOZIUM PO FIZIKE GAZOVYKH OKG, NOVOSIBIRSK, USSR, JUNE 1969. ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL 12, MAR 1970, P.

DATE PUBLISHED----MAR 70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS LASER, PERTURBATION, LASER STABILITY, PARAMETRIC RESONANCE, FREQUENCY CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/2025 STEP NO--UR/0368/70/012/000/0432/0440

CIRC ACCESSION NO--AT0108351

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 050 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0108351

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL AND EXPERIMENTAL INVESTIGATION OF THE EFFECT OF AN EXTERNAL PERIODIC PERTURBATION ON THE DIFFERENCE FREQUENCY OF OPPOSITELY MOVING WAVES IN AN ANNULAR GAS LASER. IT IS SHOWN THAT IN THE RESONANCE RANGE, WHERE THE PERTURBATION FREQUENCY IS CLOSE TO THE BEAT FREQUENCY, THE ORDINARY CONDITIONS OF OPERATION OF AN ANNULAR LASER BECOME UNSTABLE. A QUALITATIVELY NEW REGIME OF FORCED SYNCHRONIZATION WITH THE FREQUENCY OF THE ACTING PERTURBATION ARISES, LEADING TO A COMPLETE LOSS OF INFORMATION ABOUT THE ROTATIONAL VELOCITY OF THE SYSTEM. THE CALCULATED WIDTH OF THE SYNCHRONIZATION ZONE IS IN QUALITATIVE AGREEMENT WITH EXPERIMENTAL DATA.

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Reliability Theory

USSR

UDC: 621.396.6.002:658.5

+1

POMUKHIN, N. P., SKUDARNOV, M. Ye., KUZ'MIN, G. M., CHERNYAVSKIY, Yu. M., POKROVSKIY, V. P.

"A Data Collection and Processing System for Operational Control of Radio Component Production Lines"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 4 (36), pp 94-101 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V331)

Translation: The system makes it possible to monitor the operation of equipment, to take account of the number of good and rejected articles, to check their quality, to check on the course of technological processes, to give a light-panel display on the course of plan fulfilment, and to collect statistical data on operation of the line with electric typewriter printout. Resumé.

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USSR

UDC: 681.34

3

AVROV, O. M., GOLENDBERG, N. A., KUTSITSKIY, V. G., MIRZOYEV, G. A., MOZZHUKHIN, M. S., POKROVSKIY, V. S., SHAKHPAZOV, S. Kh.

"A Device for Combining the Readings of a Multichannel Angle-Phase-Code Converter"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 4, Feb 71, Author's Certificate No 292182, Division G, filed 11 Aug 69, published 6 Jan 71, p 137

Translation: This Author's Certificate introduces a device for combining the readings of a multichannel angle-phase-code converter which contains charging elements, series-connected switches, combining circuits and flip-flops. As a distinguishing feature of the patent, conversion time is reduced by connecting the output of the coarse reading channel of the converter to the input of the chief readout switch, the second input of this switch being connected to the output of the chief readout flip-flop. The switch output is connected to the input of the first delay element and to the second input of the control flip-flop. The output of the channel for the least significant reading of the converter is connected to the second input of the chief readout flip-flop. The first input of this flip-flop is connected to the first input of the control flip-flop and to the output of the control switch, and the second input of the control switch is connected to the output of the control flip-flop.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC 620.178.325

TROSHCHENKO, V. T. and POKROVSKIY, V. V., Institute of Strength Problems, Academy of Sciences Ukrainian SSR

"Method of Investigating the Principles of Fatigue Failure of Metals Using Harmonic and Combination Load Under Low Temperature Conditions"

Kiev, Problemy Prochnosti, No 2, Feb 73, pp 32-38

Abstract: The apparatus described was developed for studying the fatigue strength of metals, the kinetics of crack development, and conditions for their transition to brittle fracture under conditions of the combined action of harmonic and impact loads at low temperatures (+20 to -196 C). This apparatus consists of the following systems: a system of loading a sample by harmonic and combination cycles of load, a system of load control and matching of the force vectors of harmonic and impact loads, a system of cooling and temperature regulation of the sample, and a system for observing the instant of crack appearance and development in the sample. A diagram of the apparatus is given with its 55 parts and the article is devoted to verbal discussion of the apparatus design. It is noted that cracks 0.1 mm in size can be detected on the surface of a smooth sample. 6 figures, 8 bibliographic references.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--INFORMATION SEMANTIC MODEL AS A BASIS FOR DEVELOPING THE RATIONAL TEACHING AUTOMATON -U-

AUTHOR--GERGEY, T., POKROVSKIY, YE.A.

COUNTRY OF INFO--USSR

SOURCE--KIEV, AVTOMATIKA, NO 1, 1970, PP 61-64

DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--PROGRAMMED LEARNING, MODEL, AUTOMATION, MATHEMATIC LOGIC, SET THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1481 STEP NO--UR/0102/70/000/001/0061/0074

CIRC ACCESSION NO--AP0107913

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

2/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107913

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INFORMATION MODEL OF PROGRAMMED LEARNING IS SUGGESTED. THE CONSTRUCTION OF THE MODEL IS MADE IN THE TERMS OF SEMANTIC INFORMATION, USING THE APPARATUS OF MATHEMATICAL LOGIC, SET THEORY AND GRAPHS. AN ANALYSIS OF THE MODEL PERMITS OUTLINING THE APPROACH TO RATIONALIZATION OF INFORMATION RELATION "TEACHING, TEACHING AUTOMATON" WHEN THE RESPONSE OF LEARNING IS EXPRESSED IN CONSTRUCTED FORM.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC 632.95

GAR, K. A., KOGAN, L. M., POKROVSKIY, YE. A., KHOKHRYAKOVA, V. S., and BURMAKIN, N. M.

"Hexachlorobutadiene as an Antiphylloxera Vineyard Soil Fumigation Agent"

V sb. Khim. sredstva zashchita rast. (Chemical Plant Protectants -- collection of works, Vyp 1, Moscow, 1970, pp 42-56 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N452 by T. A. Belyayeva)

Translation: In a zone of total and partial phylloxera infection the use of hexachlorobutadiene (I) should retain its importance for many years to come. The article recommends consumption rates for I and a technique for using it, and shows the effect of I on the grape plant, soil microflora and microfauna and the effectiveness of a granulated preparation of I against phylloxera. An estimate is given of the toxicity of I for warm-blooded animals.

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USSR

UDC 547.245

VORONKOV, M. G., MARGUR, L. A., DOLGOV, O. N., PESTUNOVICH, V. A., POKROVSKIY, Ye. I., and POPEL, Yu. I., Leningrad Institute of Textile and Light Industry imeni S. M. Kirov; Institute of Organic Synthesis, Academy of Sciences Latvian SSR

"Bis(trialkylsilyl) Hypophosphites"

Leningrad, Zhurnal Obshchey Khimii, Sep 70, Vol 41, No 9, pp 1987-1991

Abstract: This is the first report on the synthesis of organosilicon -- bis(trialkylsilyl) hypophosphites $(R_3SiO_2)PH$. One method is based on the reaction of ammonium hypophosphite with trialkylchlorosilanes in the presence of secondary and tertiary amines:

$$NH_4OPH_2O + 2R_3SiCl + :B \longrightarrow (R_3SiO)_2PH + NH_4Cl + :B \cdot HCl \qquad (1)$$

R = alkyl, : B = amine

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USSR

VORONKOV, M. G., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1987-1991

The hypophosphite yield reaches 35-45%. The second method produces a much higher yield (80-90%) and is based on the reaction of hypophosphorus acid with trialkyl(dialkylamino)silanes:

$$HOPH_2O + 2R_3SiNR_2 \longrightarrow (R_3SiO)_2PH + 2HNR_2 \qquad (2)$$

Some of the properties of these compounds are discussed. The compounds readily disproportionate in the presence of alkyl halides, transsilylate are oxidized by oxygen, and add to double bonds. The IR and NMR spectra of bis(trialkylsilyl) hypophosphites are presented in a table.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC: 547.26'118

D'YAKOV, V. M., GUSAKOVA, G. S., POKROVSKII, Ye. I., and D'YAKOVA, T. L., Leningrad Institute of Textiles and Light Industry imeni S. M. Kirov and the Institute of High-Molecular Compounds, Academy of Science SSSR

"Structure and IR Spectra of Para- and Ortho-Substituted Benzoylbis(triorganosiloyl)phosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1035-1040

Abstract: A study was made of the IR spectra of the new organosilicon-phosphorus compounds of the type $XC_6H_4COP(O)(OSiR_3)_2$ containing various substituents in the ortho- and para-positions. Correlations were discovered between the frequency shift in the vibrations of the C=O group with the Hammet's constant, and the P=O group with induction constants of substituents.

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USSR

UDC: 621.373:530.145.6

POKROVSKIY, Ye. N., CHERNYSHOV, V. A.

"Experimental Study of Helium-Neon Laser Discharge in the Low Current Region"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 8, pp 40-47 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D278)

Translation: An investigation is made of the effect which the ballast resistance, shunting capacitance, length of the anode lead, length and diameter of the capillary and design of the active medium in a laser have on the minimum current of stable discharge arcing. Discharge instability in the low-current region is due to the development of oscillations in the plasma. Resumé.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC: 621.373:530.145.6

POKROVSKIY, Ye. N., SABUROVA, Z. K.

"Effect Which the Design and Volume of the Active Element Have on the Optimum Ratios of the Mixture Components in Helium-Neon Lasers"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. No 10, pp 129-131 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D154)

Translation: It is shown that the product of the optimum pressure of the mixture by the diameter of the capillary of the active element in a helium-neon laser depends on the design and volume of the active element. For an active element of coaxial design, this product differs from the usual relationship, being 2.7 mm Hg per mm. Resumé.

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POKROVSKIY, Ya. Ye.

Physical & Mathematical Sci.

JPRS 54563
19 Nov 71

EXCITONS IN SEMICONDUCTORS

[Book Review by Doctor of Physical and Mathematical Sciences Ya. Ye. Pokrovskiy of "Excitony v poluprovodnikakh" by Ya. I. Frenkel', Moscow-Leningrad, 1937, pp 1-92]

[illegible]

Electrostatic attraction between the electrons and holes also leads to the formation of electrically neutral excited states -- excitons, capable of moving about the crystal. These excited states can be regarded as particles consisting of an electron and a hole, similarly to positronium, which consists of an electron and a positron. However, to create an exciton it takes energy of the order of one electron-volt, that is, approximately five orders smaller than for the creation of positronium. Therefore the excitation of excitons in the high concentrations at which interaction between them becomes essential, especially powerful energy sources are not required.

The collective properties of excitons in semiconductors have begun to be intensively investigated in the last two or three years. In the reviewed collection original work done in the Laboratory of the Physics of Semiconductors of the Physics Institute imeni P. N. Lebedev, which occupies a leading position in the investigation of excitons, is presented. Most of the presented articles were completed in 1967-1970 and reflect the

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--RECOMBINATION RADIATION OF A CONDENSED PHASE OF NONEQUILIBRIUM CHARGE CARRIERS IN GERMANIUM -U-

AUTHOR-(02)-SVISTUNOVA, K.I., POKROVSKIY, YA.YE.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 491-7

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RECOMBINATION RADIATION, GERMANIUM, TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1706 STEP NO--UR/0449/70/004/003/0491/0497

CIRC ACCESSION NO--AP0120418

UNCLASSIFIED

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2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120418

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECOMBINATION RADIATION IN PURE GE (RESISTIVITY 50 OHM-CM AT ROOM TEMP.) WAS STUDIED AT 2-4.2DEGREESK, UNDER VARIOUS TYPES OF ILLUMINATION. WHEN THE TEMP. AND PHOTOSTIMULATION REACH THE CRIT. VALUES, A NEW INTENSE RECOMBINATION RADIATION OCCURS (WITH A MAX. AT HV EQUALS 709.6 MEV; THE LINE WIDTH IS SIMILAR TO 5 MEV, THE QUANTUM YIELD 0.8-1, AND THE CHARACTERISTIC RELAXATION TIME SIMILAR TO 20 MUSEC), WHEREAS THE FREE EXCITON RADIATION HAS A MAX. AT 714.2 MEV. THE EXPTL. RESULTS CAN BE EXPLAINED BY CONSIDERING THE CONDENSED PHASE WITH A NONEQUIL. CHARGE CARRIER CONCN. OF SIMILAR TO OR EQUAL TO 2 TIMES 10 PRIME17-CM PRIME3.

FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC: 621.315.592

GODIK, E.E., POKROVSKIY, Ya.Ye., and SVISTUNOVA, K.I.

"Photosensitivity of Silicon Doped with Boron, Ga-lium, or Indium"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 739-744

Abstract: Although doped germanium is now principally used for manufacturing photoresistors sensitive to radiation of 3-30 microns in wavelength, the authors investigated the photoconductivity and noise in silicon doped with In, Ga, and B to get information concerning the possibility of using doped silicon for photoresistances. Most of the results obtained from that investion -- the bibliography lists six such references -- were published earlier; the present article offers the hitherto unpublished results which directly characterize the photosensitivity of doped silicon. A table lists various types of silicon doped by the different impurities, and gives the various characteristics of each, including the concentration of acceptor and donor impurities as determined from the Hall effect and the conductivity. The equipment used for absolute measurements of the photosensitivity of the doped silicon is described in one of these earlier references. Various curves are given for the characteristics of these various silicon forms. The authors express their gratitude to S.G. Kalashnikov, L.N. Kurbatov, S.A. Kaufman, P.A. Bogomolov, and O.I. Kupchinskiy for their useful comments, and to V.P. Sinis for his assistance in making

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USSR

UDC: 621.372.832

POKROVSKIY, Yu. A.

"Spectral Theory of Spaced Pulses in Coupled Waveguide Layers"

V sb. Vopr. radiotekhniki (Electronic Engineering Problems--collection of works) Tula, Tula Polytechnical Institute, 1970, pp 3-6 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B152)

Translation: The physical and mathematical bases of the spectral (angular) theory of spaced pulses in coupled layered waveguides are discussed. Resume

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC: 621.376:530.145.6

POKROVSKIY, Yu. A., BAKALOV, V. I., PARINSKIY, A. Ya., and MIDITEYEVA, G. V.

"Resonance Angular Devices in the Optical Range"

V sb. Vopr. radiotekhniki (Electronic Engineering Problems--collection of works) Tula, Tula Polytechnical Institute, 1970, pp 45-53 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D376)

Translation: This paper demonstrates the possibility of using resonance angular devices as broad-band light modulators, transverse oscillation selectors in open resonators, and Q modulators for lasers. Their superiority over similar devices of the non-resonance type is noted. Resume

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC: 621.372.85

POKROVSKIY, Yu. A. and KIBEREV, A. M.

"Limiting UHF Devices"

V sb. Vopr. radiotekhniki (Electronic Engineering Problems--collection of works) Tula, Tula Polytechnical Institute, 1970, pp 56-60 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B180)

Translation: Fundamental conclusions from the theory of single-tuned limiting band pass and rejector filters as well as multi-tuned limiting filters are given. Four illustrations, bibliography of one. V. S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC 621.372.061

POKROVSKIY, YU. A., PARINSKIY, A. YA.

"Spatial Transient Processes in Resonance Laminated Systems"

Vopr. radiotekhniki -- V sb (Problems of Radio Engineering -- collection of works), Tula, Tula Polytechnical Institute, 1970, pp 7-28 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A125)

Translation: The theory of opposed and two-dimensional spatial and transient processes in resonance laminated systems is discussed, and the characteristics of a two-resonator complete internal reflection filter are calculated.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC 669.018.5:620.181:538.21

DOVGALEVSKIY, Ya. M., VLASKINA, K. I., LOYKO, A. D., and POKROVSKIY, Yu. I., Saratov Institute of the Mechanization of Agriculture

"Study of the Influence of $\alpha\gamma$-Phase in Magnico-type Magnetic Solid Alloys on the Decrease of Brittleness"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1973, pp 123-127

Abstract: The increased tendency to brittle failure of magnico-type magnetic solid cast alloys on a Fe-Ni-Al-Co base was investigated on speciments of ANKo4 alloy. The specimens were smelted down in a high-frequency furnace with quartzite lining and were then ground up to 10 x 10 x 55 mm. Fractures of Magnico alloys in a highly coercive condition and with $\alpha\gamma$-phase separations were studied by means of fractional photography. The presence of $\alpha\gamma$-phase separations results primarily in the appearance of transcrystalline fracture. Three figures, one table, five bibliographic references.

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USSR

UDC 533.9

POKROYEV, A. G. and STEPANOV, K. N., Physical-Technical Institute of the Ukrainian Academy of Sciences, Kharkov State University imeni A. M. Gorkiy

"Nonlinear Propagation Theory of Electromagnetic Waves in Plasma Near Hybrid Resonance Frequencies"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No. 10, Oct 71, pp 1658-1663

Abstract: High frequency potentials appearing in plasma in which an e.m. wave is propagating produce changes in the electron and ion particle densities and consequently, in the magnitude of the dielectric constant, which becomes dependent on the wave amplitude. Space variation of the wave amplitude at a frequency near one of the hybrid resonance frequencies in a magneto-active plasma was investigated. High-frequency wave potentials and space dispersion of plasma due to thermal motion of electrons were taken into account during the investigation.

The following further assumptions were made as the basis for the investigation: amplitude variation took place along a line at an angle to the external magnetic field; the value of the amplitude was sufficiently low to permit neglecting electromagnetic pressure in comparison to the gas-kinetic pressure; the phase velocity of the wave was much higher than the

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POKROYEV, A. G. and STEPANOV, K. N., Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 10, Oct 71, pp 1658-1663

thermal velocity of electrons.

It was found that with the thermal drift of electrons being accounted for, and for a longitudinal wave, both periodic and exponential solutions of the equations were possible, which situation indicated that in a magnetically active plasma subjected to thermal dispersion, nonlinear standing waves were possible. Solutions in the form of periodic functions only were obtained if space dispersion of plasma was neglected.

Solutions presented in the current paper may also be applied to the description of traveling electromagnetic waves if their phase velocities are well above their critical values.

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USSR

UDC 669.534.8.621.762.4

[redacted], V. R., KOVAL'CHENKO, M. S., and MARCHENKO, V. I., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Vacuum Hot Forming of Metal Powders Using Ultrasonic Vibrations"

Kiev, Poroshkovaya metallurgiya, No 10, Oct 71, pp 32-37

Abstract: Analysis of the process of powder compaction within the scope of the theory of volume viscous flow indicates an increase in effective pressure of hot forming with the application of ultrasonic vibrations. Application of ultrasound at steady-state stage of creep of the powder particles during hot forming appears to promote the creep and temporarily disturbs the steady-state flow. In hot forming the creep rate of Fe and Ni particles is proportional to the square of stress; creep appears to be controlled by the climb of dislocations. The effectiveness of ultrasonic vibrations decreases with increased temperatures. (6 illustrations, 7 bibliographic references)

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Dateline Yerevan 15 Jan73 USSR/Mil/RU

POKRYSHKIN, A. I., Mar Avn; Chmn, CC, DOSAAF, USSR; Trice HSU; presented to the Yerevan DOSAAF Com a jubilee honor badge.
Present at the ceremony were, among others:
SARKISYAN, M. A., Chmn, Yerevan City DOSAAF Com,
KOCHARYAN, G. S., Draftee,
LEVASHKO, A.G., Champion of air sport.
SAZARYAN, A.A., Chmn, CC, DOSAAF of Armenia, made a speech.

Kommunist, 16 Jan 73, p 1 col 6

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USSR

UDC 615.357.379.031.814.1.015.4:612.822.3

MESHMAN, V. F. and POKRYSHKIN, V. I., Laboratory of Neuroendocrinal Regulation, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Effect of Microinjections of Insulin Into the Hypothalamus on Evoked Potentials in the Cerebral Cortex"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 9, 1972, pp 6-8

Abstract: Injection of 0.025 units/kg of insulin into the posterior and anterior hypothalamus of anesthetized cats altered evoked potentials in different cortical regions. Evoked potentials recorded in the motor and auditory regions in response to electrical stimulation of the siatic nerve and clicks, respectively, intensified, but they were inhibited in the visual cortex following light flashes. The heterogeneity of the effects of hypothalamic structures on the cortex was also reflected in the different phases of the evoked potentials which changed more or less independently.

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USSR

UDC 669.15'26'28-194:620.186

VINITSKIY, A. G., YANENSKIY, N. YE., MOSHNYAGUL, V. V., KOGAN, G. M., SHCHEGLYUK, P. S., and POKRYSHKINA, V. A., Kirovograd Institute for Agricultural Machine Building

"Influence of Structure on the Wear Resistance of Stamps Made of Kh12M Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1971, pp 74

Abstract: The influence of the structure of Kh12M steel on the wear resistance was studied as applicable to conditions of operation of dies and matrices of stamps for cutting and punching of transformer steel. It was found that Kh12M steel with austenitic structure has higher wear resistance under dry friction conditions with dynamic loading than hardened martensitic steel. Hardening from 1180-1200°C in oil and tempering at 180-220°C for 1.5-2 hr represent the optimal heat treatment mode for Kh12M steel.

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USSR

UDC 621.387

KASHNIKOV, N.G., POKRYVAYLO, A.B., TYUREMNOV, G.N., NIKOL'SKIY, V.M.

"Dual Mechanotron"

USSR Author's Certificate No 217656, filed 18 Feb 66, published 16 Jan 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A148P)

Translation: A dual longitudinal control mechanotron is proposed, which differs in the fact that with the object of increasing the sensitivity and precision, the mechanotron container is filled with gas, the anode is made in the form of wire rings, and the cathode in the form of a plate, in order to assure formation of a corona discharge.

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USSR

DIDENKO, V. P., POKUDIN, K. N.

UDC: 577.4

"Minimizing Structures of Relay Devices by the Method of Meta-yard Isolation"

V sb. Primeneniye vychisl. tekhn. v mashinostr. (Use of Computer Technology in Machine Building--collection of works), Izhevsk, 1971, pp 124-126 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V439)

[No abstract]

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USSR

DIDENKO, V. P., POKUDIN, K. N.

UDC: 51.621.391

"On Some Methods of Minimizing Multiple-Output Structures of Relay Devices"

Tr. Frunz. politekhn. in-ta (Works of the Frunze Polytechnical Institute), 1971, vyp. 50, pp 194-211 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V702)

[No abstract]

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510003-6

USSR

UDC 51.621.391

DIDENKO, V. P., POKUDIN, K. N.

"Minimization of Boolean Functions by Separation of the Metakernel"

Avtomat. Ustroystva Ucheta i Kontrolya [Automatic Accounting and Testing Devices -- Collection of Works], No. 6. Izhevsk, 1970, pp 293-299 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V481).

Translation: Certain approximate methods of minimization of Boolean functions are studied.

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USSR

UDC 532.593:532.529

KUTATELADZE, S. S., Associate Member of the Academy of Sciences of the USSR, BURDUKOV, A. P., KUZNETSOV, V. V., NAKORYAKOV, V. Ye., POKUSAYEV, B. G., SHREYBER, I. R., Institute of Thermal Physics, Siberian Department of the Academy of Sciences of the USSR, Novosibirsk

"Concerning the Structure of a Weak Shock Wave in a Gas-Liquid Medium"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 2, 1972, pp 313-315

Abstract: Experiments were done as a qualitative check on theoretical concepts of a shock wave propagating in a liquid containing gas bubbles. The piezoelectric method of measurement was used to investigate the structure of the shock wave front. The LKh609 pressure gauge was used with frequency independence from 20 to 50 kHz and sensitivity of 6.3 V/bar. Nitrogen was blown into the liquid through a porous plate at the lower end of a transparent plastic tube 6 cm in diameter and 100 cm long. Signals from pressure gauges on the inner walls of the tube were sent to a cathode-ray oscilloscope. It was found that increasing the intensity of the shock wave increases the frequency and relative amplitude of oscillations in the shock wave front. Reducing the bubble diameter increases the frequency and reduces the ampli-

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KUTATELADZE, S. S. et al., Doklady Akademii Nauk SSSR, Vol 207, No 2, 1972, pp 313-315

tude of oscillations in the shock wave front. Pressure oscillograms of the shock wave front in a gas-liquid mixture with artificially increased viscosity show a monotonic pressure profile, which confirms the theoretical conclusion of a nonoscillating process in this case.

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USSR UDC 621.372.852.22.001.24

POKUSIN, D. N.

"On the Calculation of Waveguide Phase Shifters Based on Ferrite With a Rectangular Hysteresis Loop"

Moscow, Radiotekhnika i Elektronika, Vol 26, No 9, Spe 71, pp 1603-1617

Abstract: Approximate formulas are derived for the differential phase constant and attenuation constant of H_{10} modes in a rectangular waveguide with a dielectric and a magnetized ferrite in the shape of rings or rectangular frames. The H_{11} mode is also studied in a circular waveguide with a dielectric rod and an azimuthally magnetized ferrite layer. The resultant formulas are used as the basis in studying the effect of various quantities on the differential phase constant. The author thanks Ya. N. Fel'd for interest in the work and for discussing the results.

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USSR

UDC: 621.373.5

GRISHKIN, V. A., POL', L. M., and TELESHEVSKIY, V. I.

"Stable Semiconductor Oscillator With Two Coherent Radio Frequencies"

Moscow, Pribory i tekhnika eksperimenta, No. 2, 1971, pp 122-124

Abstract: The instrument described was designed to help solve problems in experimental optical electronics, particularly in the excitation of ultrasonic light modulators, where there is a need for an oscillator of two harmonic signals whose frequencies differ by an amount several orders less than their nominal values. In this instrument, the difference between the two frequencies is 10^{-4} or 10^{-5} of their nominal value. The oscillator is fully transistorized, and uses a phased automatic frequency control circuit. A block diagram and schematic are given, and the operation of the system is explained. Experiments made on the instrument showed it to have an oscillator instability of $\pm 10^{-5}$. The authors, members of the Moscow Machine-Instrument Institute, express their gratitude to S. F. Korndorf and A. A. Sanin, the latter now deceased, for their comments.

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POLAK, L. S.

UDC 553.9/540

PLASMOCHEMICAL PROCESSES IN PETROCHEMISTRY

[Article by Doctor of Physico-Mathematical Sciences L. S. Polak; Moscow. Vestnik Akademii Nauk SSSR, Russian, No 3, March 1972, pp 26-29]

One of the basic trends in the development of modern science and technology is the ever-expanding use of processes with extremal mode parameters: temperature, rate, contact time, etc. Analysis of physico-chemical processes that take place at temperatures of 10^3-$1.5 \cdot 10^4$ deg K, with contact times of the order of $\sim 10^{-3}$-10^{-1} sec and at pressures from fractions of mm Hg to hundreds of atmospheres, is essential for development of fundamentally new and economical technological methods of producing chemical products and for developing new materials with specific properties. The solution of these problems is facilitated by a new branch of physical chemistry (and chemical technology) -- analysis of chemical processes in low-temperature plasma -- plasmochemistry.

Low-temperature plasma is characterized by partial or complete ionization of atoms and molecules; it may be assumed that such plasma is quasineutral. Quite recently, in connection with the development of aerospace technology, investigations in the realm of thermonuclear synthesis, gas dynamics in the presence of chemical reactions, gas discharge technology, plasma metallurgy, etc., enormous possibilities were opened for the production and application of such plasma (incidentally, it is high-temperature plasma from the chemist's point of view.

Plasmochemical processes are particularly promising for the industrial application of those chemical reactions in which equilibrium of the desired products is displaced toward high temperatures, rates increase sharply as temperature is increased, high yields of the desired products are achieved under essentially nonequilibrium conditions. Low-temperature plasma makes it possible to carry out chemical processes at temperatures up to 20,000°K at pressures from 10^{-4} to 10^{4} atm under equilibrium and nonequilibrium conditions, and to use abundant, inexpensive and unstable raw materials.

The plasma must have high temperature in order to achieve sufficient dissociation of the raw material and so that new compounds are produced in

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UDC 617.781-009.24-073.96-092.9

USSR

UKHYTIL, B., NOVOTNY, M., and POLAKH, I., Clinic of Ear, Nose and Throat Diseases, and Chair of Social Medicine, Purkinje University, Brno

"Objective Recording of Postrotation Nystagmus in Experimental Animals"

Moscow, Vestnik Otorinolaringologii, No 6, 1972, pp 55-58

Abstract: Thirty guinea pigs were rotated in a specially designed chair at different speeds from 8 to 100°/sec to determine the threshold of excitability of the vestibular apparatus and establish the relationship between individual values of the electronystagmogram and the speed of rotation. None of the animals reacted to 8°/sec, the lowest rate of rotation; 1 did so to 10°/sec, 5 to 12°/sec, 16 to 14°/sec, and 24 to 16° sec. Thus, in most of the animals the threshold of excitability of the vestibular apparatus was in the 14 to 16°/sec range. The relationship between the individual values of the electronystagmogram and rate of rotation expressed in logarithms was found to be a linear one starting at 14°/sec.

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Acc. Nr. AT0045638 Abstracting Service: CHEMICAL ABST. Ref. Code UR0020

89718x Preparation of methyl methacrylate from methacrylonitrile. Mekhtiev, S. I.; Dalin, M. A.; Gusseinov, A. G.; Sleptsova, O. M.; Lukina, E. M.; Poichiev, R. A. (USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(1), 108-9 [Chem] (Russ). Me methacrylate (I) was prepd. in 86.2% yield in a continuous reactor by heating equimolar amts. of methacrylonitrile and 84% H_2SO_4 30 min at 100°, followed by heating the intermediate methacrylamide with 2 moles MeOH 2 hr at 95°. I (87.8%) was also obtained when the process was run in a 60-l. exchange reactor. DBJR

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UDC 614.7:615.285.7:632.95]-099

USSR

TRAKHTENBERG, I. M., Professor, KAGAN, Yu. S., Professor, BELONOZHKO, G. A., Doctor of Medical Sciences, ANTONOVICH, Ye. A., Candidate of Medical Sciences, and POL'CHENKO, V. I., Candidate of Medical Sciences, All Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics, Ministry of Health USSR, and Kiev Medical Institute

"Pesticides and Problems of Hygiene"

Moscow, Gigiyena i Sanitariya, No 7, Jul 70, pp 14-17

Abstract: The following topics were discussed: the increasing use of pesticides all over the world, the mounting number of reported poisonings (from 1,700 cases in the period 1945-1949 to over 15,000 in the period 1955-1959), the varied effects of soil and water pollution, and the ability of some pesticides to interact with food proteins, fats, and vitamins and to alter the specific and nonspecific reactivity of the body to many pathological agents and physiological stimuli. These conditions require a massive research effort as a preliminary step in the intelligent control of the use of these toxic compounds. Of major importance is the development of adequate animal models to study the remote effects of pesticides, to determine the possibility of extrapolating the data to man, and to predict the potential dangers to health from low concentrations of the toxins.

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UDC: 537.525.1

USSR

POLATBEKOV, P. P., ZHUKOV, I. A.

"Investigation of the Influence Which a Readily Ionized Additive has on the Distribution of Particles of a Substance in the Plasma of the Arc in Vaporization of Natural Specimens"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 18, No 3, Mar 73, pp 386-390

Abstract: An investigation is made of the way that the concentration of atoms and ions of the impurity component and the main component of various natural specimens is redistributed along the radius and axis of an arc column when a sodium additive is introduced into the arc. Iron ore, granite, and zinc concentrate were used as specimens. The concentration of impurity atoms and ions for all specimens was determined by the method of emission; the concentration of atoms of the main component of the specimen (zinc -- in the zinc concentrate) was determined from the width of the line undergoing self-absorption by interferometric measurements.

The radial distribution of the concentration of atoms and ions of impurity elements (Ca, Al, Ti, Mn, Pb, Mg, Cd) in the central cross section of the arc is axially symmetric with a maximum on the discharge axis

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POLATBEKOV, P. P., ZHUKOV, I. A., Zhurnal Prikladnoy Spektroskopii, Vol 18, No 3, Mar 73, pp 386-390

during vaporization of any of the investigated specimens. When sodium additives are introduced into the arc (in concentrations from 1 to 10%), there is an increase in the absolute values of the concentration of atoms of most impurity elements, and a change in the nature of the distribution of concentrations both along the radius and along the axis of the discharge. Some differences are observed in the nature of radial and axial distributions for atoms with different ionization potentials, and for arcs with different effective ionization potentials. The nature of the distribution of impurity atoms during vaporization of zinc concentrate is similar to the distribution of the atoms of the main component of the specimen (zinc).

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UDC 541.125 + 542.943:546.181.1+546.13

USSR

SOKOL'SKIY, D. V., DORFMAN, YA. A., POLE, G. P., Institute of Organic Catalysis and Electrochemistry, Academy of Sciences KazSSR

"Study of the Kinetics of Oxidation of Phosphine with Chlorine Solution"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 44, No 11, Nov 71, pp 2571-2573

Abstract: A study was carried out on the activity of PH_3, HClO, Cl_2 and the H_3O^+ and ClO^- ions on the rate of oxidation of phosphine with chlorine solution at 25°. A reaction mechanism has been proposed leading to the kinetic equation

$$-\frac{dCl^-}{} = \frac{4C_{Cl}\text{-}K_p P_{PH_3}, (k_1 K_D [H^+] + k_2 [H^+]^2 [Cl^-] \quad K_G K_D}{K_D [H^+] + aH_2O + [H^+] \cdot [Cl^-] \cdot K_G K_D}$$

which described satisfactorily the reaction kinetics. The conatants for chlorine hydrolysis, HClO dissociation and other parameters were calculated.

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UDC: 531.787

USSR

KOZLOV, O. V., POLENOV, B. V., KHAZANOV, B. I.

"On Measuring Atmospheric Pressure by Using Radioactive Emitters"

Tr. Soyuz. NII priborostr. (Works of the Union Scientific Research Institute of Instrument Making), 1972, vyp. 17, pp 106-115 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.525)

Translation: The authors consider various methods of measuring pressure in the range from 40 to 760 mm Hg by using radioactive emitters with respect to mean free path and specific losses of energy of alpha particles, and with respect to scatter of beta particles. The technical specifications are given as well as possible fields of application of methods of this type. Three illustrations, bibliography of ten titles.

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UDC 539.125.4:535.853

USSR

OL'DEKOP, L. G., POLENOV, B. V., KHAZANOV, B. I.

"Low-Energy Proton Spectrometer"

Tr. Soyuzn. NII priborostr. (Works of the Union Scientific Research Institute of Instrument Building), 1971, No. 15, pp 3-10 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.1983)

Translation: A proton spectrometer is described that is designed for measuring spectral distributions of protons with particle energies from $1.8 \cdot 10^4$ to $1.8 \cdot 10^8$ part/sec·cm^2. A modulation shower with a collector is used as a detection unit in which protons passing the energy selection system are additionally deflected in the field of the electrostatic condenser in order to reduce noise from ultraviolet radiation and particles of a different type. The collector currents are recorded by a narrow-band ac amplifier with synchronous detection. 3 ill., 7 ref. Resume.

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POLENOV, B. V.

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Acc. Nr.: AF0042568

Ref. Code: UR0293

JPRS 50162

Measurement of Low-Energy Electrons

(Abstract: "Measurement of Low-Energy Electrons," by Yu. I. Gal'perin, N. V. Dzhordzhio, I. D. Ivanov, I. P. Karpinskiy, E. L. Lein, T. M. Mulyarchik, B. V. Polenov, V. V. Temnyy, N. I. Fedorova, B. I. Khazanov, A. V. Shifrin and F. K. Shuyskaya; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 108-119)

[Note: This is part of a sectionalized article "Study of Geoactive Corpuscles and Photoelectrons on the Satellite 'Kosmos-261'," Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136]

A spectrometer for low-energy electrons, operating in the energy range 30 eV-15 keV, is described. Electrons undergo energy selection in a cylindrical capacitor and then are accelerated to 17 keV and are registered by a scintillation counter with two photomultipliers operating in a coincidence circuit. The instrument field of view is circular, the aperture angle is $\pm 3.5°$, the geometry factor is $2 \cdot 10^{-3}$ cm^2·sterad and the energy resolution is $\Delta E/E = 0.19$. In the first range (30-150 eV) energy scanning is done smoothly by applying a sawtooth voltage; in the second analysis it is done smoothly at three fixed energies -- 1, 4.5 and 15 keV. The instrument can be switched from one regime to another by command from

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the earth. The paper gives the first results of measurements on the "Kosmos-261" satellite. The instruments measured the equilibrium energy spectrum of fresh photoelectrons at different latitudes for different pitch angles. Soft auroral electrons with energies from 30 eV to approximately 1 keV were registered both in the "second" zone of auroras and in the main zone of auroras in which electrons with energies 4.5 and 15 keV were also very intensive even during magnetically quiet times. On many revolutions of the satellite about the earth, passing approximately along the auroral oval, with transition from the midnight to the morning sectors there is a structureless "background" of electrons with an almost constant intensity and slowly changing angular distribution. The energy flux of these electrons is approximately 1 erg/cm^2·sec. Near the midnight sector and with transition from the midnight to evening sector the fluxes of auroral electrons are far more irregular, with strong peaks, particularly at about 4.5 keV. No measureable electron intensities were discovered in the middle and low latitudes in the keV range. The upper limit of the energy flux in the quiet atmosphere is approximately $<1.5\cdot10^{-2}$ erg/cm^2·sec. An exception is the equatorial region of the ionospheric anomaly, where as earlier (on the "Kosmos-5" satellite) there was sporadic registry of soft electrons.

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USSR

AYNBUND, M. R., KOVALENKO, V. G., KOLOSOV, Yu. A., POLENOV, B. V.

"Multiplier With Continuous Dynode for Registration of Charged Particles"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronnoluch. i fotoelektr. pribory (Electronic Technology. Scientific-Technical Collection. Electron Beam and Photoelectric Devices), 1970, Issue 4(18), pp 47-51 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A193)

Translation: The principal parameters and characteristics are presented of channel electron multipliers of tubular type (spiral and curved) with an input window 1.5-mm in diameter, and of the slotted type with an input window 2 x 6 mm^2, studied in a counting regime of signal registration. Summary.

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